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# LAND ALONG THE BLUE RIDGE

OWNERSHIP AND USE OF LAND IN  
RAPPAHANNOCK COUNTY, VIRGINIA

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**LAND ALONG THE BLUE RIDGE: OWNERSHIP AND USE OF LAND IN RAPPAHANNOCK COUNTY, VA.** by Gene Wunderlich. Natural Resource Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 299.

### **ABSTRACT**

A survey of landowners in Rappahannock County, Va., provided information on ownership, land use, and owners' opinions concerning public services and future outlook for the county.

More than half the landowners have their legal residence outside the county, but residents own over half of the land. Nonresidents are more likely to hold land for recreation or resale than local residents. Forty-three percent of the owners are in professional, technical, or managerial occupations; only 5 percent class themselves as farmers. Agricultural activity is declining, and sales of land in small parcels can lead to the disappearance of agriculture.

Nonresidents expressed more interest than residents in retaining the rural atmosphere of the county, but they were less critical and less informed about public services than residents were. Many residents and nonresidents seem unaware of existing State and county land use controls. Public policy can play a role in land use, but final decisions are made by landowners. An improved land information system could help both community leaders and landowners in planning future development of the county so that the attractive aspects are preserved.

**Keywords:** Ownership, Land acquisition, Landowners, Land reform, Land tenure, Land utilization, Land values, Seasonal home communities, Virginia.

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## SUMMARY

Large amounts of land are shifting from resident to nonresident ownership in many rural areas of the country. This trend, if continued, is likely to change the very features that attract new buyers to the area—open space, scenic views, wildlife, a back-to-nature atmosphere. Land use planning is essential if unwanted or unrestricted change and development are to be avoided. Resident owners have more influence and greater voice in local government than nonresidents, but in order to formulate and carry out land use restrictions and regulations they need facts about ownership and trends.

Since such information is scarce, the Economic Research Service undertook a sample survey of landowners in Rappahannock County, Va., in mid-1974, that provided information about landowners, the uses and value of their land, and their opinions about available services and future outlook for the area. This survey, one of several such studies underway or planned, is intended to supply facts about the ownership of rural land in the United States. This particular study emphasizes the features most relevant to a rural community in the presence of metropolitan pressure.

Rappahannock County is a wooded agricultural region that lies along the Blue Ridge Mountains, only 70 miles from Washington, D.C. It bears similarities to many other urban-impacted areas of the county. Agriculture, once an important activity, is declining.

A comparison of the characteristics of county residents and nonresidents reveals some striking differences in owner profile, land use, community involvement, and awareness of local conditions. The survey found that only 47 percent of the landowners are legal residents, but they own 58 percent of the land. Landownership is highly concentrated; 16 percent of the owners hold 77 percent of the land. On the other end of the scale, 65 percent of owners hold only 7 percent of the land.

Although agriculture is still an important activity, a mere 5 percent of surveyed landowners classified themselves as primarily farmers, whereas 43 percent considered themselves in "professional, technical, and managerial" occupations. However, many people with other primary occupations do some farming, so the distinction between farming and other occupations, here as elsewhere, is becoming blurred.

The owners tend to be in the higher income bracket—41 percent of the land is owned by those with annual incomes of \$50,000 or more, and they tend to be older and well educated.

The survey indicated that 36 percent of the land was pasture, 35 percent woodland, 16 percent cropland, 11 percent brush and waste, and 2 percent other. An additional 32,000 acres (19 percent of all county land) is in the Shenandoah National Park, and is mostly woodland. Residents tend to own more cropland and nonresidents tend to own more timber and brush, but the survey did not show whether ownership causes use or the other way around.

Where changes in land use have taken place, a higher proportion of nonresident-held land has undergone intensification of use, or improvements. Residents and nonresidents seemed to practice conservation in fairly equal measure.

Owners estimated the value of their holdings, without buildings, at \$1,584 per acre. This is twice the average value of all land sold, as shown in county records for 1973. Price per acre was higher in smaller parcels. There is a fairly high rate of transfer of land in the county, and this may concern those interested in land use, since a transfer means a new owner, and owners are the crucial decisionmakers. Changing farms into small parcels for vacation or recreation purposes can lead to disappearance of agricultural activity.

Owners tend to resist developmental changes in the county, especially when they consider the area as a living environment rather than a workplace. Nonresidents are markedly more conservative, or resistant to change, than residents are. Although most



owners do seem to favor the agricultural appearance of the county, relatively few seem interested in renting farmland for agricultural purposes.

A substantial number of landowners were not aware of existing statutes that might affect land use, such as county zoning and taxation measures or a State tax law that gives preferential treatment to land in agricultural or certain other open space uses.

Basic decisions concerning land use can be influenced by public policy, but they ultimately rest with landowners. Adequate information about such factors as changes in land use and value, availability of resources, and opportunities for leasing can play a crucial role for both individual and community decisions.

# LAND ALONG THE BLUE RIDGE

## Ownership and Use of Land in Rappahannock County, Virginia

by Gene Wunderlich  
Natural Resource Economics Division  
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### INTRODUCTION

Landownership in Rappahannock County, as elsewhere in the Nation, is important because it affects land use decisions.

Land use policy requires information about ownership. "Rational land use planning would be impossible without knowledge of patterns of landownership within a given area."<sup>1</sup> Clearly, the use of land depends on the decisions made by landowners. Whether the owner is an individual, private organization, or government agency, it is ultimately the owner who decides whether a farm should be transformed into a residential subdivision, a wooded acre should remain forested, or an area of parkland will be accessible only to backpackers. Conservation, preservation, and productive uses of land all depend on the decisions of the owners.

A second need for landownership information is that ownership represents a claim on the services and income from land. As a source of services and income, land is a store of wealth, so the distribution of landownership is a factor in the distribution of wealth and well-being. In the United States, nearly a fourth<sup>2</sup> of our wealth is in land.

The uses and distribution of land in rural areas present distinct problems and warrant special attention. Rappahannock is a small county with scenic attractiveness, an agricultural base, and accessibility to a population concentration. These qualities make it a desirable subject for a study of rural landownership.

Although the county is only 70 miles from the metropolitan complex of Washington, D.C., it is still complete-

ly rural. The western fringe of the county contains 31,763 acres of Shenandoah National Park in the Blue Ridge Mountains (fig. 1), an area praised for its scenic beauty. The wooded mountains are combined with the orchards, pastures, and historic homesteads of the rolling Piedmont.

Agriculture is still a principal industry although the number of farms and amount of land in farms have declined. The last Census of Agriculture in 1969<sup>3</sup> reported only 276 farms and 88,000 acres in farms, whereas there were 851 farms and 125,000 acres in farms in 1945. In 1945-69, the share of the county's land in farms declined from three-fourths to one-half. Agricultural decline continues. Cropland is being converted to pasture; yet the acreage of pastureland is declining as formerly open areas of crops and pasture are returned to brush, often in anticipation of development into vacation and second home plots.

Rappahannock has attracted city dwellers both as transients and as builders of vacation homes. If these trends continue, Rappahannock would, in effect, be selling off the very qualities for which the land is purchased. The county would lose much of its character and value, the new owners would be disillusioned, and the few benefits, if any, would go not to the residents of Rappahannock County but temporarily to a few real estate subdividers and dealers.

Some people have expressed the concern that widespread absentee (nonresident) ownership contributes to partitioning of land into small units, a decline in farming and grazing, and a loss of scenic and productive qualities of the area. Uncontrolled development can indeed lead to these problems, but they are not inevitable.

<sup>1</sup> Debate on Land Use Policy and Planning Assistance Act of 1972, Congressional Record, Vol. 118, No. 145.

<sup>2</sup> U.S. Bureau of the Census, Statistical Abstract of the United States, 1973, Washington, D.C. For method of determining land value, see Institutional Investor Study, Report of the Securities and Exchange Commission Supplementary Vol. 1, 92nd Cong., 1st Sess., H.D. 92-64 Pt. 6, App. II, p. 318.

<sup>3</sup> U.S. Bureau of the Census, Census of Agriculture, 1969, Vol. 1, Sec. 2, County Data, p. 601. The largest number of farms reported for Rappahannock by a Census of Agriculture was in 1925, when there were 995 farms and over 142,000 acres of land in farms.

Rational land use policies could help avoid such a fate; these policies should be based on the best information available, and this ownership survey provides some essential data for their formulation. The survey itself does not imply what the county, State, or Federal Government or any citizen or group should do, but it does provide a basis for discussion.

This report summarizes characteristics of the owners, use and value features of the land, and finally some opinions of the landowners about Rappahannock County in late 1973 and early 1974.

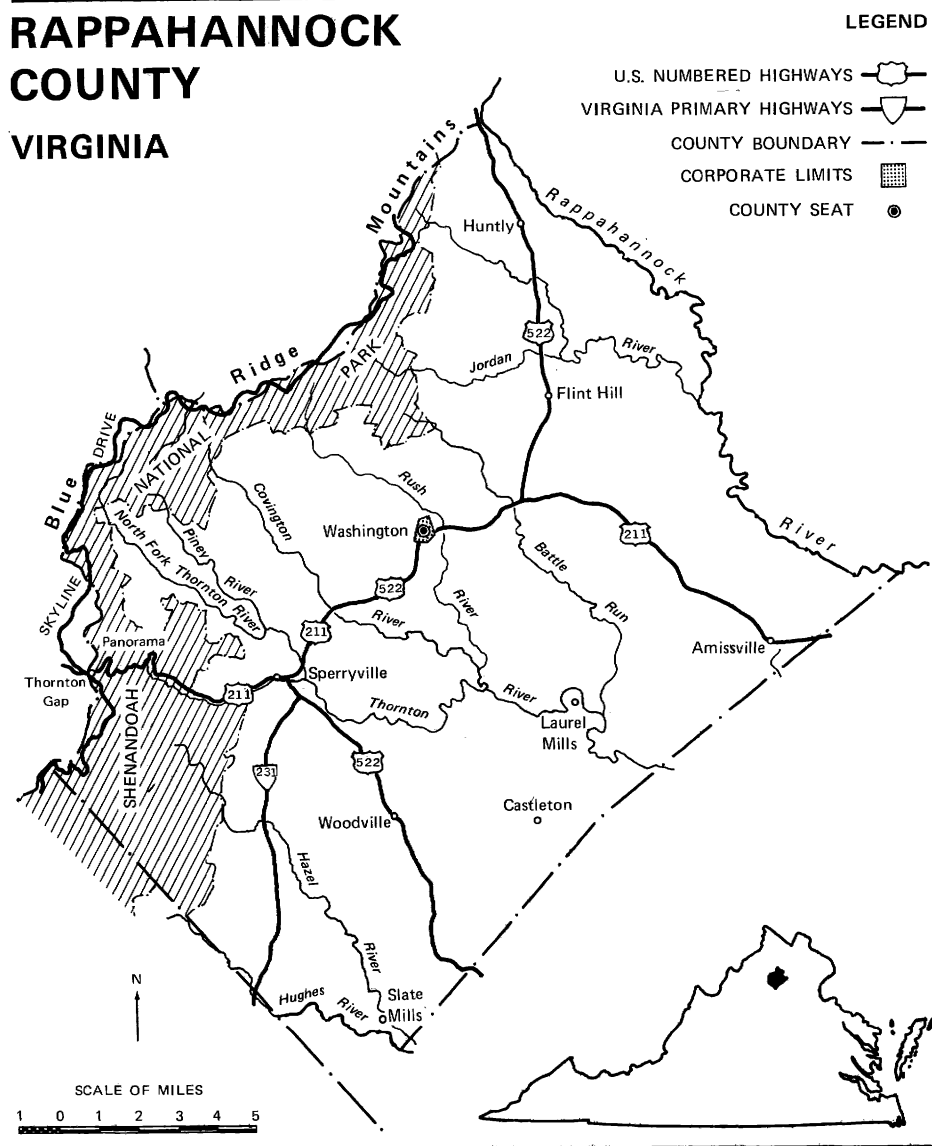


Figure 1

## THE LANDOWNERS

No single profile can indicate differences among the landowners in Rappahannock County. Owners fall into various categories. Some own thousands of acres, others a small plot. They are residents and absentees, farmers and retirees, rich and poor. For this study, they have been classified and described by several basic characteristics. The two central features are the owner's residence—whether his permanent or legal residence is in the county or not—and the quantity of land owned. Most of these owners are husband-wife (59 percent) or single individuals (25 percent); a smaller proportion are partnerships other than husband-wife (9 percent) and other owners, such as estates, corporations, and government (7 percent). The distribution of land among owners is similar—husband-wife, 55 percent; single individuals, 23 percent; partners, 11 percent; and others, 11 percent.<sup>4</sup>

### Residence

A high proportion of landowners do not reside in the county. The basic contrast between resident and nonresident owners largely involves contrasts of behavior and opinion. This report therefore focuses on the residence of owners.

Resident and nonresident owners may differ in their decisions on land use because of differences in attitudes, information, and involvement in the community. They may differ in their participation in local government and community affairs. They may differ in their effect on the flow of income into and out of the county.

About 47 percent of the landowners in Rappahannock County are residents; they own 58 percent of the land. About 53 percent are nonresidents, who own about 42 percent of the land (fig. 2 and table 1).<sup>5</sup>

These figures are in fact skewed by one nonresident who owns 8,500 acres, equal to 5 percent of the county's area (excluding the national parkland), or 10 percent of the farmland. If it were not for this absentee owner, the nonresident owners would have an even smaller share of the land.

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<sup>4</sup> The survey was based on a sample of the parcels in the county; estimated numbers and proportions of owners are derived from the parcel statistics (see appendix). The parcel is a unit of land within which there is one ownership relation. It is usually the unit shown on the assessor's tax rolls. An owner may have one or more parcels of land.

<sup>5</sup> A few additional owners not classified by residence are primarily corporations, institutions, estates, and other types to which the question of residence did not readily apply. This group represents 7 percent of the total of all owners and 8 percent of the land (excluding national parkland). The residence characteristic hereafter in this report excludes the "residence unclassified" owners. They were excluded largely because other owner characteristics such as age and occupation are not relevant to organizations and government.

Most of the nonresident owners live in nearby jurisdictions. Two-thirds of them, owning nearly two-thirds of nonresident-held land, live within 1 or 2 hours' drive of Rappahannock.<sup>6</sup>

Although a few of the nonresidents, mostly those who live nearby, do become involved in the Rappahannock communities and local government, nonresidents are generally less likely to do so than residents.

Residents and nonresidents could be further distinguished by grouping the more recently arrived residents and the old, established families. In terms of outlook, participation in community affairs, and social standing, new residents may differ substantially from those whose families have been there for several generations.

Is there a trend toward a greater share of land owned by nonresidents? The decline in number of farms and an increase in nonagricultural holdings suggest there is a growing proportion of nonresident owners. However, since there are no earlier surveys of ownership comparing residents and nonresidents, the survey data cannot answer the question conclusively. The survey did approach the question indirectly by asking when parcels were acquired.

Results showed that parcels owned by nonresidents have been acquired more recently than parcels owned by residents (table 2). This could indicate a trend toward nonresident ownership, or the finding could result from other factors. Perhaps the nonresident holdings simply change ownership more rapidly, or perhaps past nonresidents are moving to become residents after having held the land for several years.

What effect does a high proportion of nonresident owners have on land use and county income? The proportion of owners who are residents is large enough to maintain a strong local influence on land use decisions and prevent any large outflow of income from the county. In fact, nonresidents probably direct more income into the county than they take out. Vacation or weekend nonresidents purchase services and some goods, require few public services, pay property taxes, and channel little income out of the county. Nonresident farmland owners who rent farmland take out some rental income, but Rappahannock has a low rate of tenancy. Among the issues relating to nonresident owners that Rappahannock faces, land use and control and their effect on overall income are probably more important than income transfers.

### Size of Holding

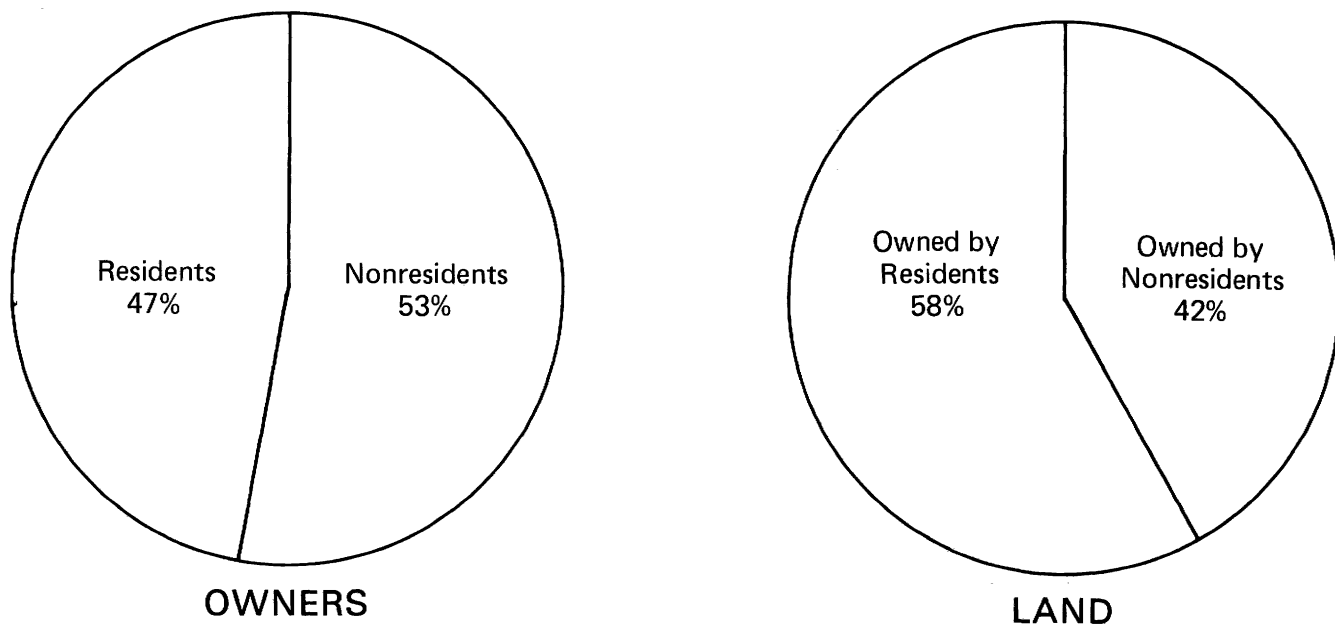
Ownership of land in Rappahannock County is highly concentrated; that is, much of the land is owned by a few people and a large number of owners hold very little

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<sup>6</sup> Adjacent counties, Virginia counties bordering Maryland, and the District of Columbia metropolitan area.

# OWNERS AND LAND BY RESIDENCE \*

Rappahannock County, 1973



\* Excludes residence unclassified, primarily corporations, institutions, government.

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Figure 2

Table 1—Residence of landowners

Owner	Percent of owners -		Percent of land owned	
	All owners	Owners whose residence was classified	All owners	Owners whose residence was classified
Residents .....	44	47	53	58
Nonresidents:				
Home nearby .....	33	35	27	29
Home at some distance .....	15	17	11	12
Distance unclassified .....	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total, residence classified .....	93	100	92	100
Other <sup>1</sup> .....	<u>7</u>		<u>8</u>	
Total, all owners .....	100		100	

<sup>1</sup> Corporations, institutions, and government.



Table 2—Date parcels were acquired, by residence of owner

Date acquired	Resident		Nonresident	
	Percent of parcels	Percent of land owned	Percent of parcels	Percent of land owned
1965-74 . . . . .	54	54	65	65
1955-64 . . . . .	18	21	29	33
1945-54 . . . . .	13	17	4	2
1935-44 . . . . .	11	7	2	1
1934 and before . . . . .	4	1	1	1
Total . . . . .	100	100	100	100

<sup>1</sup>Less than 0.5 percent.

land. A large proportion of owners (38 percent) have total holdings of less than 5 acres (table 3) and the 65 percent of owners with 25 acres or less hold only 7 percent of the acreage. On the other end of the scale, 16 percent of owners, who have more than 100 acres each, hold 77 percent of the land.

Table 3—Size of holdings, by percent of owners and land owned

Size (acres)	Percent of owners	Percent of land owned
Up to 1 . . . . .	20	1
1.1 to 5 . . . . .	18	1
5.1 to 25 . . . . .	27	6
25.1 to 100 . . . . .	19	16
100.1 to 500 . . . . .	13	39
500.1 and over . . . . .	3	38
Total . . . . .	100	100

<sup>1</sup>Less than 0.5 percent.

This high degree of concentration is due in part to the different purposes for which land is held. Farming generally requires large blocks of land for successful operation, but a recreation site may be just a fraction of an acre on a mountainside or along a stream. However, there is a wide range in the size of holding for any given purpose; there are many small farms and there are several large units of which no obvious use is being made.

Another way of showing the concentration of landownership is with a concentration curve, drawn by plot-

ting the percent of owners against the percent of land owned (fig. 3). The concentration curve is a line bowing downward from the diagonal (the diagonal is the theoretical line of equal distribution; the more the concentration curve bows downward, the more concentrated are the holdings). Compared to the distribution of landownership elsewhere in the United States and in many other countries, ownership in Rappahannock County is highly concentrated. On a scale of 0 to 1 the degree of concentration is 0.83.<sup>7</sup>

Who are the large landholders? Most of them are residents (table 4 and app. table 1). Of the 39 owners who held more than 500 acres in 1973, at least 32 were residents.<sup>8</sup> However, there are a few large landholders who are nonresidents. Many, but not all, of these large landowners are influential in community, social, and political affairs.<sup>9</sup> Through hunt club membership, county office, or large farming operations, these large owners, usually residents, are able to influence land use in the county. Nonresidents tend to have less influence on community affairs, and thus they would influence land use largely through their own holdings.

<sup>7</sup> Concentration is sometimes expressed as a ratio, increasing as the ratio approaches 1.00. By comparison, ratios for landownership in the Great Plains States and Southeast States range from 0.5 to 0.65.

<sup>8</sup> Data derived, not from the sample survey, but from a full-count presurvey array of all owners in 1973. No significant changes are known to have taken place between the dates of the presurvey array and the sample survey.

<sup>9</sup> Landownership is one, but not the only, factor associated with community leadership. A study of leadership conducted during the year of the ownership survey showed a diffusion of leadership among 72 leaders, none of whom were nonresidents. Rapley Owings, Rappahannock County Leadership and Problem Identification Survey (mimeo), 1974.

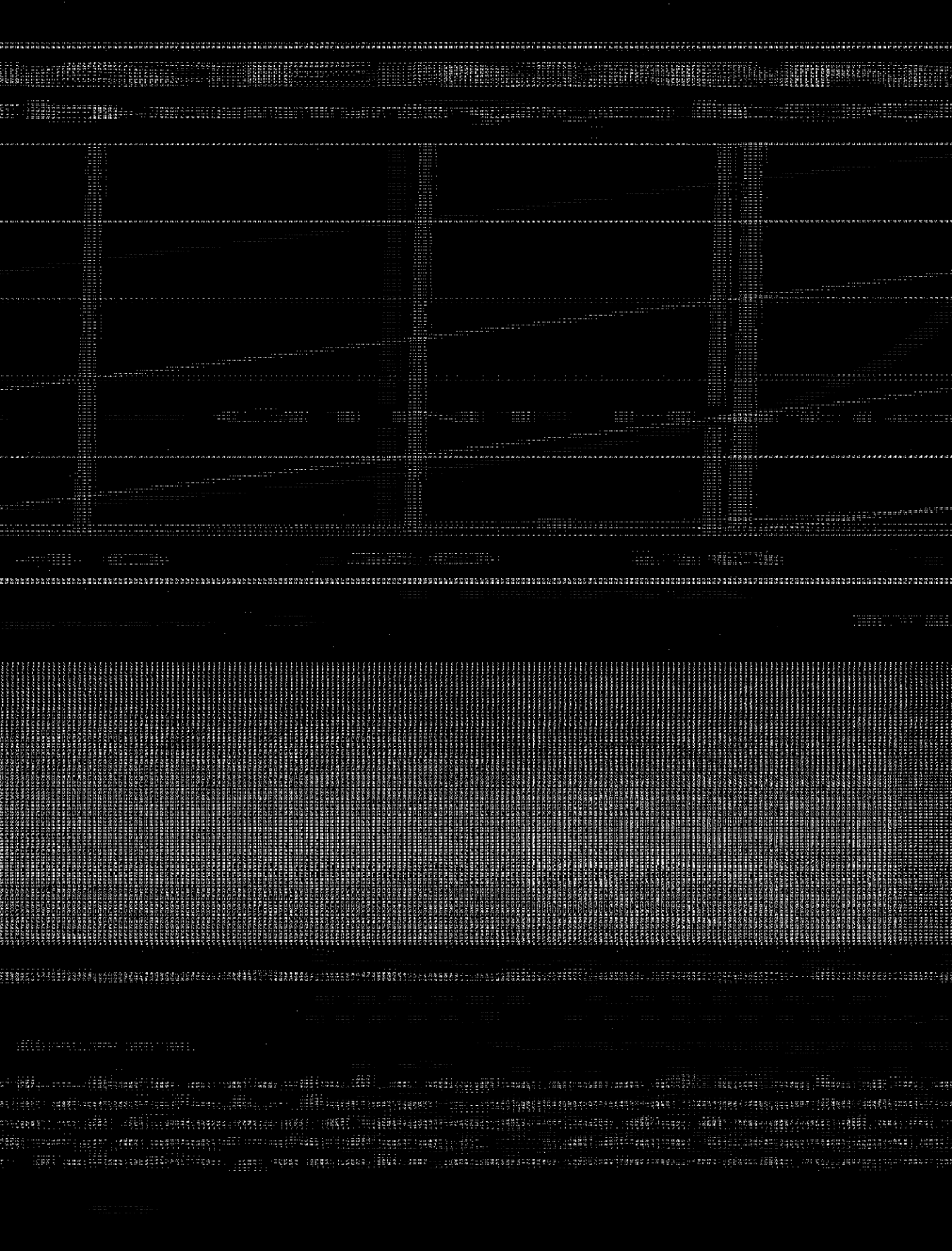


Table 4—Size of holdings, by residence of owner

Size (acres)	Resident		Nonresident	
	Percent of owners	Percent of land owned	Percent of owners	Percent of land owned
Up to 1 .....	20	<del>20</del> <sup>1</sup>	19	1
1.1 to 5 .....	19	<sup>1</sup>	16	1
5.1 to 25 .....	29	5	26	8
25.1 to 100 .....	17	14	22	22
100.1 to 500 .....	10	32	16	55
500.1 and over .....	5	48	1	14
Total .....	100	100	100	100

<sup>1</sup>Less than 0.5 percent.

holdings. Many full-time farmers also hold off-the-farm jobs.

In the Census of Agriculture, anyone who operates a farm is classified as a farm operator by definition. In this ownership survey, a person was called a farmer only if he so classified himself. As shown in table 6, virtually all of the farmers in Rappahannock County were resident owners.

Rappahannock has no large industrial or commercial enterprises, so residents working off the farm are com-

monly employed outside the county. Residents who commute elsewhere to work considerably outnumber the people who commute into the county to work.<sup>11</sup> Survey respondents considered Rappahannock a better place in which to live than to work. Among resident owners of land in the county, 36 percent were employed outside the county, only 28 percent were employed in the county, and the rest were not employed. Among all landowners who reported their place of employment, 62 percent said they were employed outside of Rappahannock; only 13 said they were employed in the county, and the rest were not employed.

Table 5—Occupation of landowners, by percent of owners and land owned

Occupation	Percent of owners	Percent of land owned
Farmer .....	5	14
Farmworker .....	1	1
Professional, technical, and managerial .....	43	64
Clerical, sales .....	7	1
Craftsman, operative, worker .....	13	6
Other, employed .....	3	1
Retired .....	25	15
Unemployed .....	3	1
Total .....	100	100

<sup>1</sup>Less than 0.5 percent. Sum of items rounds to 1 percent. The number of farmworkers is so small that percentages in that category are not useful.

### Economic Status

Occupation and income are of course related. One might expect that county landownership would be concentrated in the hands of upper income groups, especially given the predominance of professional, technical, and managerial occupations. According to the survey, the group with annual incomes of \$50,000 or more represented 9 percent of the owners but held 41 percent of the land (table 7). The 37 percent of owners with annual incomes below \$10,000 held only 13 percent of the land.

Although residents and nonresidents are found in all income groups, the pattern of income for residents differs markedly from that of nonresidents. Nonresidents were clustered at higher income levels than residents. Very few nonresidents were in the lowest income category, but nearly one-fourth of the resident owners were in that group. The dominant income class for nonresi-

<sup>11</sup> Commonwealth of Virginia, Div. of State Planning and Community Affairs, Data Summary, Rappahannock County, Dec. 1972, p. 14.

Table 6—Occupation of landowners, by residence

Occupation	Resident		Nonresident	
	Percent of owners	Percent of land owned	Percent of owners	Percent of land owned
Farmer .....	10	25	1	1
Farmworker .....	3	1	0	0
Professional, technical, managerial ...	20	49	62	82
Clerical, sales .....	8	1	7	2
Craftsman, operative, worker .....	19	8	8	1
Other, employed ..	3	1	2	1
Retired .....	31	16	20	12
Unemployed .....	6	1	1	1
Total .....	100	100	100	100

Table 7—Economic status of landowners, by percent of owners and land owned.

Annual income	Percent of owners	Percent of land owned
Less than \$3,000 .....	14	4
\$3,000-\$4,999 .....	5	1
\$5,000-\$9,999 .....	18	8
\$10,000-\$19,999 .....	26	18
\$20,000-\$49,999 .....	28	28
\$50,000 or more .....	9	41
Total .....	100	100

dents was \$20,000 to \$49,999; they represented 42 percent of the nonresident owners and 42 percent of the nonresident land. Among nonresidents, the two top income classes, representing 55 percent of the owners, held 82 percent of the land. Resident owners were primarily in the two middle-income groups with incomes from \$5,000 to \$19,999. Among residents, a relatively small number (4 percent) in the top income group dominated landholding by owning 41 percent of resident-held land (table 8).

A number of owners in the middle-income groups held sizable acreages. However, there were substantial concentrations of acreage held by high-income owners

and a large number of small acreages held by lower income groups. In general, high income is associated with ownership of large amounts of land. Does land produce high income or does high income purchase land? Respondents reported a relatively small incidence of income from land; if this is true, it seems apparent that high income purchases land.

### Age and Education

Landowners of Rappahannock County tend to be older persons, and they generally have a high level of education. Of the owners reporting age, 63 percent were 45 and over, and 37 percent were 55 and over (see table 9). People 55 and over owned 69 percent of the land in the county.

The accumulation of an estate, including land, is usually related to income, which generally rises with age. Even the amount of land a person acquired through inheritance or gift tends to increase with his age, and a substantial amount of land is owned by retirees.

Age of landowner is also useful in predicting one source of ownership transfers. With the present age structure of landowners in the county, even if there were no sales or gifts, one might expect on an actuarial basis that 2 percent of the land would transfer through death of the current owners each year.<sup>12</sup>

<sup>12</sup> Rough measure based on U.S. mortality rates, by age, in 1969. U.S. Bureau of the Census, Statistical Abstract of the United States, 1973, table 80, p. 58. The rate is an approximation of mortality rates of age categories and acreage held in Rappahannock, using midpoint age in each age range.

Table 8—Economic status of landowners, by residence

Annual income	Resident		Nonresident	
	Percent of owners	Percent of land owned	Percent of owners	Percent of land owned
Less than \$3,000 .....	24	5	5	2
\$3,000-\$4,999 .....	7	2	3	1
\$5,000-\$9,999 .....	26	10	12	6
\$10,000-\$19,999 .....	28	25	25	9
\$20,000-\$49,999 .....	11	17	42	42
\$50,000 or more .....	4	41	13	40
Total .....	100	100	100	100

Education is positively related to the amount of land owned; 22 percent of all owners in the survey (or 25 percent of those answering the education question) reported 17 or more years of formal schooling (table 10).

#### Community Involvement

A final owner characteristic the survey explored is the degree of owner involvement in the community, as represented by various public services. Ownership of a parcel of land should imply an attachment of the owner to the land, or an interest in the community where the land is located. The survey asked owners about the quality of such public services as schools, roads, and recreation. The results of such a survey can help in determining what social services are needed, who the recipients are, and which services should be emphasized in future planning.

One purpose of the question was not merely to obtain ratings, but to discover whether the respondents had an opinion about the county's public services. A striking feature of replies is the large proportion of nonresident owners who had no opinion (table 11). The survey results suggest that not only are nonresidents likely to be less informed on community problems and issues; they also are likely to be guided by a set of wants or needs for community services that differ from those of the residents.

More than 40 percent of the nonresident owners responding to the questions registered no opinion on any service except roads and taxes, and they appeared to be generally satisfied with these. Of the nonresident owners responding, 70 percent rated the roads good or adequate, and over 60 percent rated the tax administration good or adequate.

Table 9—Age of landowners

Age group (years)	Percent of owners	Percent of land owned
Up to 35 .....	19	5
35-44 .....	18	8
45-54 .....	26	18
55-64 .....	28	28
65 and over .....	9	41
Total .....	100	100

Table 10—Education of landowners

Years of school completed	Percent of owners	Percent of land owned
7 or less .....	15	7
8-12 .....	34	21
13-16 .....	26	32
17 or more .....	25	40
Total .....	100	100



Table 11—Opinions of public services, by residence of landowners

Service	Opinion								No response	
	Good		Adequate		Inadequate		No opinion		Resident	Non-resident
	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident		
	Percent									
Schools .....	41	10	40	23	3	1	3	48	13	18
Police protection .....	29	10	37	22	11	9	6	41	17	18
Fire protection .....	41	11	34	31	6	6	1	34	18	18
Roads .....	22	19	44	41	14	9	0	16	20	16
Parks and recreation .....	23	14	14	13	32	13	6	39	24	21
Trash disposal .....	19	5	34	20	24	20	4	36	19	19
Dog control .....	22	6	40	23	19	9	2	41	17	20
Building inspection .....	20	8	27	21	18	5	14	46	21	20
Sewers .....	21	15	28	16	19	4	11	44	21	21
Zoning subdivision .....	26	15	22	18	16	3	12	45	24	19
Taxes .....	38	28	25	23	12	2	6	28	20	19
Extension programs .....	39	19	22	10	5	1	13	49	21	21
Other <sup>1</sup> .....	1	0	0	0	2	1	0	17	97	82

<sup>1</sup> "Other" includes such items as library and unspecified.

Some services, such as schools, are of little personal concern to nonresidents, since they do not receive the service (app. table 2).<sup>13</sup> Their concern, if any, would be largely for the possible effect of school financing on the property tax. Roads, on the other hand, affect the accessibility of the owner's land, whether he is a resident or nonresident.

From the high proportion of nonresidents reporting no opinion it appears they are unaware of, or unconcerned about, police services. The high "no opinion" response of nonresident owners indicates they attach a lower importance than might be expected regarding protection of their property, such as second homes. It may also indicate they have little or no contact with police.

The large majority of residents did register opinions, and it seems natural that residents would be more interested in public services and be better informed about them than nonresidents. Residents appeared to be most satisfied with their schools and fire protection and at least satisfied with recreation facilities and trash disposal.

Another way of examining opinions about public services, particularly in relation to taxes, is to see how

the taxpayer would like to have tax money spent. For example, over two-thirds of the owners named schools as one of the three most important public service needs. When asked how much of \$100 of county taxes (representing 100 percent) they believed should go to schools, they allocated, on the average, \$35 (table 12). Comparable figures for all public services were computed.

This allocation of county tax revenues for public services reflects the same difference among types of owners to opinions about the quality of services. Residents who expressed an opinion voted that 38 percent of their tax funds should go for schools; nonresidents voted 32 percent.

Nonresidents voted 14 percent of their tax funds should go for police protection and residents voted only 9 percent. Residents attached a higher priority to schools than nonresidents. Nonresidents, although their principal response was "no opinion," attached a higher priority to police than did residents. Both residents and nonresidents placed a higher priority on schools than on police.

## THE LAND

Land is held for many different reasons, principally for farming, vacation homes, or speculation. As we have seen, ownership means the right to decide *how* a piece of land will be used, so ownership, indirectly at least, is related to use.

Parcels of land are as varied as their owners—perhaps more so. About one-fourth of the parcels are an acre or

Table 12—Preferences of landowners in public use of tax money

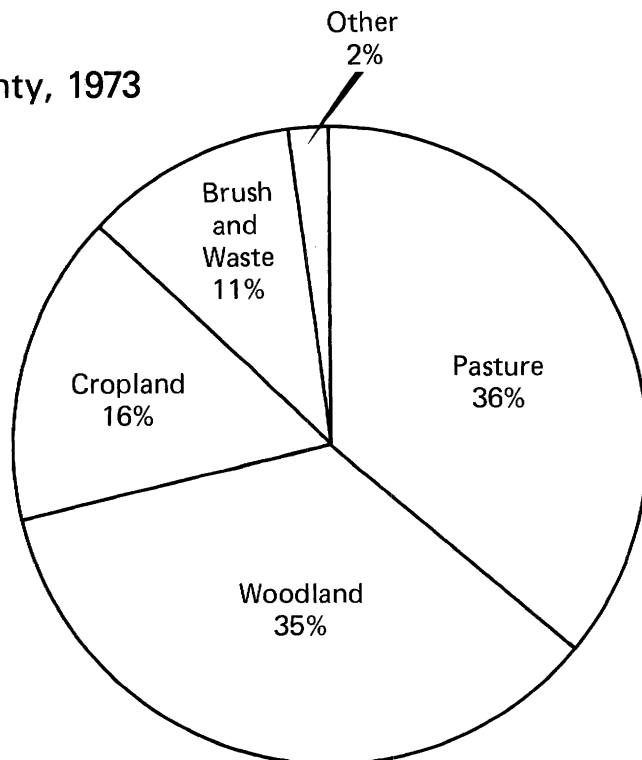
Service	Percent of owners including item in 3 preferred public services	Percent of funds assigned (average)
Schools . . . . .	68	35
Police protection . . . . .	46	11
Fire protection . . . . .	40	10
Roads . . . . .	49	18
Parks and recreation . . . . .	16	4
Trash disposal . . . . .	25	8
Dog control . . . . .	5	1
Building inspection . . . . .	3	0
Sewer . . . . .	12	3
Zoning/subdivision . . . . .	6	2
Taxes . . . . .	5	2
Extension programs . . . . .	3	1
Other <sup>1</sup> . . . . .	22	5

<sup>1</sup> "Other" includes such items as library and unspecified.



# LAND USE

Rappahannock County, 1973



USDA

NEG. ERS 1011-75 (6)

Figure 7

Table 13—Land in various uses, by residence of owner

Land use	Resident		Nonresident	
	Parcels	Acres	Parcels	Acres
	Percent			
Cropland . . . . .	28	14	13	19
Pasture, grazing, permanent hayland . . . . .	53	49	35	23
Woodland, timber . . . . .	39	27	50	41
Brushland, waste . . . . .	25	7	29	14
Small building site . . . . .	50	3	52	2
Other . . . . .	1	1	3	1
Total <sup>2</sup> . . . . .		100		100

<sup>1</sup> Less than 0.5 percent.

<sup>2</sup> Because parcels can have more than one use, percentages do not total 100: Acreages in various uses, however, do add to acreage totals and percentages to 100.

Table 14—Primary reason for acquiring land, by residence of owner

Reason	Resident		Nonresident	
	Percent of owners	Percent of acres	Percent of owners	Percent of acres
Investment:				
Operate .....	13	33	13	35
Rental .....	2	0	2	5
Sale .....	7	2	15	14
Residence:				
Permanent .....	53	39	8	3
Second home .....	2	5	28	15
Other:				
Recreation .....	0	0	11	8
Protection of other land .....	4	2	7	2
To keep in family .....	12	13	11	13
Other .....	3	0	0	4
No response .....	4	6	5	1
Total .....	100	100	100	100

reported as no change. In the survey, changes were classified as (1) intensive or (2) extensive. Intensive changes were from cropland, pasture, woodland, or brush to buildings; from pasture, woodland, or brush to cropland; from woodland or brush to pasture; or from brush to woodland. Extensive changes were the reverse. Where changes were made, a greater proportion of nonresident-owned than resident-owned land shifted to intensified use (table 15). Contrary to what we might expect, land was not used more extensively after acquisition by a nonresident.

Some parcels are acquired because the owner plans to farm, rent the land, or otherwise acquire cash return from it. Based on the response to the income question, 25 percent of the parcels, representing 61 percent of the land, yield income to the owner. Of parcels which yield income, about 33 percent derive income from farm operation by the owner, 16 percent from farm rental, and 34 percent from building rental (table 16).

The source of income is related to the size of tract. Two-thirds of the tracts yielding income from farming are 50 acres or larger. Only 5 percent of tracts yielding

Table 15—Changes in land use since acquisition, by residence of owner

Type of change	Resident		Nonresident	
	Percent of parcels	Percent of acres	Percent of parcels	Percent of acres
Intensive .....	30	29	28	42
Extensive .....	3	3	3	1
Mixed .....	3	10	0	0
Change but unknown .....	1	2	0	0
No change .....	58	54	68	58
No response .....	6	2	1	1
Total .....	100	100	100	100

<sup>1</sup> Less than 0.5 percent.



income from farming are 15 acres or smaller. Thirty-two percent of the resident-held parcels yield income, and only 18 percent of the nonresident-held parcels yield income.

Clearly, a great majority of the parcels and a substantial share of the acreage are held for reasons other than to produce current income. Even some large parcels do not yield income. This suggests that many parcels could be devoted to agriculture, and thus produce income, without interfering with the primary purposes for which the land is held.

Structures on a property are important features of land use and are often the standard by which land is

classified as "developed" or "undeveloped." The parcels held by residents more frequently have buildings than do parcels held by nonresidents. Fifty-five percent of tracts held by nonresidents reported no buildings of any kind (table 17). Dwellings were the most common structure reported by full-time occupants and by nonresidents reporting part-time occupancy.

Residents and nonresidents do not differ to any great extent in their care or conservation of the land. Use of specific conservation practices is similar for both groups. For example, cutting or controlling brush appears to be the most common practice on parcels owned by both residents and nonresidents (table 18).

Table 16—Income-producing uses of land

Source of Income	Parcels		Acres	
	Percent of income-yielding parcels	Percent of all parcels	Percent of income-yielding parcels	Percent of all parcels
Agriculture, self-operated . . . . .	33	8	68	41
Agriculture, renting out . . . . .	15	4	18	11
Timber sales . . . . .	5	1	3	2
Hunting, fishing, or other recreation . . . . .	5	1	1	1
Building rental . . . . .	34	9	6	4
Other . . . . .	8	2	4	2
Total . . . . .	100	25	100	61
No income . . . . .		75		39
Total . . . . .		100		100

Table 17—Buildings on parcels, by residence of landowner

Item	Resident		Nonresident	
	Percent of owners	Percent of land	Percent of owners	Percent of land
Buildings . . . . .	75	88	44	70
No buildings . . . . .	21	11	55	30
No response . . . . .	4	1	1	1
Total . . . . .	100	100	100	100

<sup>1</sup> Less than 1 percent.

Table 18—Conservation methods used, by residence of landowner

Conservation method	Resident		Nonresident	
	Percent of parcels	Percent of acres	Percent of parcels	Percent of acres
Planted trees . . . . .	12	9	19	11
Built pond . . . . .	4	6	4	5
Fertilized or limed pasture . . . .	21	24	16	20
Seeded pasture . . . . .	14	16	7	13
Planted wildlife cover . . . . .	1	1	9	13
Seeded or stabilized road or streambanks . . . . .	4	7	6	4
Cut or controlled brush . . . . .	35	28	31	27
Used other conservation practice .	5	5	4	2
Conservation unspecified . . . . .	0	0	0	0
No conservation . . . . .	0	0	0	0
No response . . . . .	0	0	0	0

Conservation practices generally are associated with the land use, so differences in conservation are due to the differing uses of land by various types of owners. Residents, for example, have a larger share of their land in pasture than nonresidents and, therefore, they would be expected to have a larger share in seeded pasture.

The size of parcels, too, will influence the use of conservation measures. Even if the smallest parcels are exempted from the computation because some are in town, the larger parcels tend to have more conservation practices than smaller ones. Among owners of parcels under 1.1 acres, 77 percent reported no conservation; of the parcels 3.1 to 15 acres, 54 percent reported no conservation; and of the parcels over 50 acres, only 22 percent reported no conservation. The most common practices on all sizes of parcels appeared to be cutting brush, fertilizing, and liming pasture.

### Land Values

The price of land is related to its use. For example, conversion of some land from agricultural to residential or industrial use is associated with increased land prices. Farmers in an area where such conversions are expected can no longer compete for land. Income from farming will not cover land costs based on residential or industrial use. High land values usually call for more intensive uses, and these improvements, in turn, continue to further increase values.

This survey sought to determine land values as owners perceived them. Owners were asked to estimate the per

acre value of their land, with and without buildings. Responses indicated the owners believed the average value of their land was substantially above the average value as calculated from actual sales during 1973. They estimated an average value of land with buildings at \$5,231, and without buildings at \$1,584. The average value computed from actual sales in the county was \$684.<sup>15</sup> The owner estimates, therefore, are 2 1/2 to 8 times the average selling price.

Two possible reasons for this difference between actual and perceived values are: (1) The sample was weighted with owners of high-valued land or (2) owners had an exaggerated view of the value of their land. The survey sample parcels were dispersed throughout the county, and sample owners seemed representative of county landowners in general (see appendix, Ownership Survey Procedures), so the difference does not seem to be the fault of the sample.

The owners may have had in mind an "asking" price, rather than a minimum acceptable price. Or, since values had been rising, they may have projected past price increases, and therefore inflated their estimates. Finally, there may be a tendency to value one's land "at the margin," that is, at the most recent (high) price at which similar land has sold, plus a shade more. The idea that owners tend to overvalue their land (except to the tax

<sup>15</sup> Sales value was a summary of consideration reported in public records. Not all transactions in the public records show a value or an acreage. The average was computed only from the values and acreage actually reported.

assessor) is supported by the replies to the question: Do you think your land has increased more, less, or about the same as the market? Although 61 percent of the parcels were thought by their owners to be valued about the same as the market, 34 percent were thought to be above the market, and only 5 percent below the market.

Many qualities account for the differences in prices of individual land parcels. The ownership survey examined three important features: size of tract, building, and owner. One might expect that: (1) buildings would increase the per acre value of a parcel, (2) larger size would decrease the per acre value of the parcel, and (3) resident owners would have more valuable land than nonresidents. The survey estimates did bear out these three premises.

According to owner estimates, the presence of buildings increased the value per acre of the average parcel by over \$3,600. This difference probably represents not only the value of the buildings but the higher site value of land suitable for buildings. Since rising values generally price land out of extensive use and toward more intensive uses, increasing land values in Rappahannock County will tend to encourage increasing density of settlement and more building, and this in turn will tend to increase the competition for land and thereby raise prices.

Some of the same forces that affect building affect parcel size. Subdivision historically has been associated with an increase in per acre value, and in this sample the high-valued tracts were small rather than large (table 19). The average value of land increased as the size category decreased. Only the 15- to 50-acre group without buildings did not follow the inverse progression of value and size. This exception may be due to subdividers' reluctance to break farms into units of less than 25 acres, because lots below this size require wider roadway dedications and other more stringent subdivision requirements recently enacted. Thus more recent, hence higher valued, sales have favored the 15- to 50-acre group.

The differences in values of land held by residents and nonresidents were associated with the differences in buildings and use of land (table 20). Residents tend to have more buildings and higher valued buildings. Residents have a higher proportion of the more expensive properties with buildings than nonresidents. The average value of resident properties with buildings is much higher than for nonresident properties. The value of land without buildings is much the same for residents and nonresidents.

### Real Estate Activity

Real estate is the primary industry of the county. The value of real estate traded, as reported in public records, was \$7.6 million in 1973. This greatly exceeds the value of retail, agriculture, or other sales in Rappahannock.<sup>16</sup>

According to local land records, the trend in the number of real estate transactions is upward.<sup>17</sup> In 1973, the number of sales was 143 percent of the 1963 sales. However, the total value of land sold in 1973 was 492 percent of the 1963 value. During this period the price of land rose from \$187 to \$648 per acre (fig. 8), while the average number of acres per transaction declined from 50 to 41 acres.

Although the number of transactions, value, and acreage of land sold are increasing, the resident population of Rappahannock County has declined slightly.<sup>18</sup> The decline in population and the increase in land transactions reflect outside pressure on the real estate market. The increase in land prices, despite net outmigration, seems a result of an upsurge in vacation or recreation purchases by nonresidents.

The volume of transactions is sufficiently large to be of concern to those interested in land use. A sale is not necessarily related to a change in land use but it is related to change in a crucial decisionmaker—the owner. In 1973 alone, the acreage transferred was equivalent to 14 percent of the total farmland in the county.<sup>19</sup> That is to say, if all the land bought and sold were farmland, it would take little more than 7 years for all the farmland to change hands. Of course, not all the sales are of farmland, but an active real estate market does affect pasture and cropland prices and thus indirectly the viability of agriculture.

The division of farms into small parcels for vacation, part-time occupation, or investment can result in disappearance of crops, orchards, or supervised grazing. Sumac, cedars, honeysuckle, and poison ivy take over

<sup>16</sup> Total retail sales in 1973 were estimated to be \$4.4 million: Survey of Buying Power, 1974, Sales Management, July 8, 1974, p. D-112. Market value of all agricultural products sold was \$2.5 million in 1969: U.S. Bureau of the Census, Census of Agriculture, 1969, Vol. 1, Pt. 24, p. 601. During 1969-73, prices of farm products of the type sold in Rappahannock, e.g., fruit and beef, rose 50 to 75 percent. Total agricultural marketings in 1973, comparable to 1969, and assuming the same volume, would be \$3.5 to \$4.0 million.

<sup>17</sup> Values reported in the land records of the Clerk of Court receipt books for 1973 and 1963. Does not include transactions where "lot" designation but no acreage is given. A lot is a small plotted area in town or subdivision on the average about 1/2 acre, but size is not shown in the assessment record. Average value per acre does not include "lot" values.

<sup>18</sup> Population of Rappahannock County in 1970 was 5,199 and the provisional estimate for 1972 was 5,200. Population in 1960 was 5,369. U.S. Bureau of the Census, Population Estimates and Projections, 1974, P-25, No. 517, p. 65; and City and County Data Book, 1967, p. 392.

<sup>19</sup> Deeds of Record are announced in the Rappahannock News approximately monthly. Records of transfer are also available in the office of Clerk of Court (Recorder). In 1973 there were 349 deeds of transfer; 284 reported acreage and 331 reported value. Total value reported was \$7.6 million. Total acreage reported was 11,739.

Table 19—Land values, by size of parcel and presence of buildings

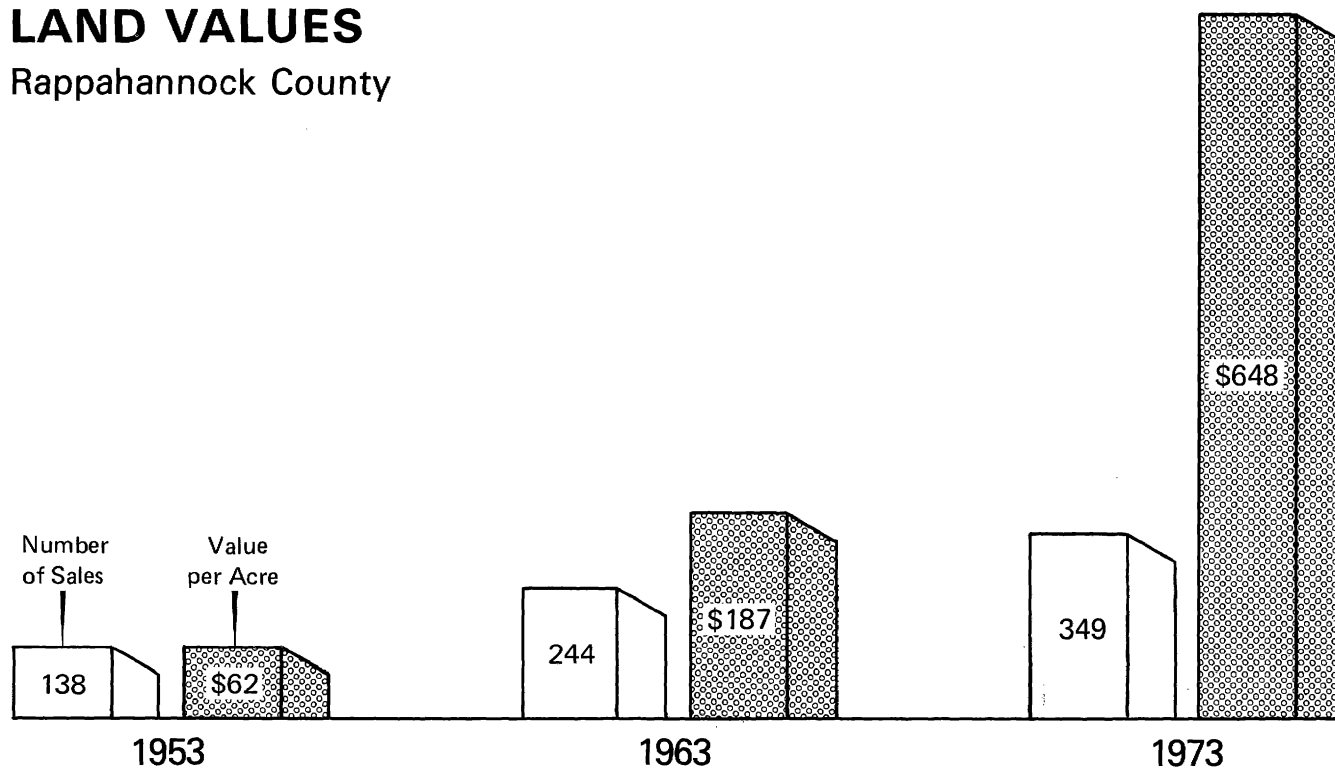
Value per acre	Size of parcel (acres)									
	With buildings					Without buildings				
	Up to 1	1-3	3-15	15-50	50+	Up to 1	1-3	3-15	15-50	50+
<i>Percent</i>										
Up to \$500 .....	2	19	15	18	18	6	23	15	23	23
\$501-\$1,000 .....	25	14	25	42	53	38	33	40	47	50
\$1,001-\$1,500 .....	0	5	30	16	17	3	0	26	23	27
\$1,501-\$2,000 .....	7	10	5	7	6	15	11	11	2	0
Over \$2,000 .....	<u>66</u>	<u>52</u>	<u>25</u>	<u>17</u>	<u>6</u>	<u>38</u>	<u>33</u>	<u>8</u>	<u>5</u>	<u>0</u>
Total .....	100	100	100	100	100	100	100	100	100	100
<i>Dollars</i>										
Average value .....	11,770	9,890	3,092	1,867	1,301	2,631	2,106	1,222	1,433	871

Table 20—Land values, by residence of owner

Value per acre	With buildings			Without buildings		
	Resident	Nonresident	Total	Resident	Nonresident	Total
<i>Percent</i>						
Up to \$500 .....	14	14	14	16	19	18
\$501-\$1,000 .....	28	40	34	40	46	43
\$1,001-\$1,500 .....	10	19	15	15	21	18
\$1,501-\$2,000 .....	7	6	6	11	5	7
Over \$2,000 .....	41	21	31	18	19	14
Total .....	100	100	100	100	100	100
<i>Dollars</i>						
Average value .....	6,727	2,790	5,645	1,747	1,399	1,703

## LAND VALUES

### Rappahannock County



USDA

NEG. ERS 1078-75 (6)

Figure 8



serve it.<sup>21</sup> Only 29 percent of nonresidents felt that events likely to change the county would make it a better place to live and 60 percent felt they would worsen the county (table 21). Residents were more evenly divided on change—48 percent said change would be for the worse. Residents and nonresidents agreed in their opinions about events likely to preserve the county, and their opinion differed little with respect to the county as a place to work.

## Owners' Awareness of Land Use Controls

Many States have enacted special land use legislation, primarily to better cope with pressure on our resources from a growing, moving, demanding population. Virginia has adopted some measures<sup>22</sup> and has organized the Virginia Land Use Advisory Committee to provide guidance for the State in developing land use policy.

Most of the responsibility for land use regulation and

**Table 21—Opinions on how change and preservation events would affect Rappahannock County as a place to live and work, by residence of landowner**

Residence of landowner	Place to live					
	Change events			Preservation events		
	Better	No change	Worse	Better	No change	Worse
	Percent					
Resident . . . . .	40	12	48	48	22	30
Nonresident . . . . .	29	11	60	47	23	30
	Place to work					
	Change events			Preservation events		
	Better	No change	Worse	Better	No change	Worse
	Percent					
Resident . . . . .	43	22	35	42	31	27
Nonresident . . . . .	45	16	38	44	25	31

In terms of effects on living, all owners generally regarded the preservation events more favorably than the change events. The same preferences seemed to hold for the effects on working, although the opinions were not as strong. One might conclude that owners are cautious about, or at least selective in, the changes that might affect land use in the county. The nonresidents, many of whom are cognizant of undesirable developments elsewhere and look to Rappahannock as something of an unspoiled haven, are even more conservative in their reaction to change.

comprehensive planning has been delegated to local government. Landowners of Rappahannock County, therefore, can be an important influence on land use policy, either through their elected supervisors or through contact with officials such as the zoning administrator or county engineer. Owners also affect land use by their response to various regulations and incentives, such as regulations on minimum lot size. Owners' awareness of, and attitudes toward, land use measures will affect their decisions.

The questionnaire asked owners their opinion of two

<sup>21</sup> Change events suggested were (1) build a large subdivision, (2) remove restriction on mobile homes, (3) start a large plant, (4) decrease farming, (5) widen highway 211 to 4 lanes; (6) widen highway 522 to 4 lanes, and (7) build a new shopping center.

Preservation events were (1) no new subdivisions, (2) more orchards, (3) land sales to residents only, and (4) water and sewage systems in towns. All others were small changes.

<sup>22</sup> The statement of policy is contained in the 1971 Virginia Constitution, Art. XI, Sec. 1, which declares the Commonwealth's policy to protect natural resources "for the benefit, enjoyment and welfare of the people." The Critical Environmental Areas Act (Virginia Code § 10-187 to 10-196); The Wetlands Act (§ 62.1-13.1 to 62.1-13.20); The Erosion and Sediment Control Law (§ 21-89.1 to 21-89.15); and The Environmental Coordination Act (§ 10-17.31 to 10-17.65) are examples of legislation recently passed that will affect land use.

new land use measures, one on zoning and another on preferential taxation. These ordinances zone certain areas for agricultural or conservation use, and then restrict the size and number of lots that can be sold in these areas. The minimum acreage for subdivision on agricultural land is 25 acres; on land zoned for conservation, the minimum size is 50 acres.

Thirty-nine percent of the residents and 64 percent of the nonresidents were not aware of these ordinances (app. table 6). At the time of the survey, the new ordinances had been recently debated and widely publicized. Apparently, a substantial number of landowners are not aware of an important area of control of land use.

Of the owners who were acquainted with the two zoning ordinances, 42 percent of residents and 72 percent of the nonresidents approved of them. The new ordinances may be more favorably regarded by nonresidents with experience in strong land use measures of other jurisdictions because, by comparison, the county's do not seem restrictive.

Then, too, residents may well be more concerned with their use options than nonresidents, who may be concerned with preserving current use. Both residents and nonresidents who had an opinion favored the ordinances. A higher proportion of farmers (88 percent) were aware of the ordinances than were any other occupation groups. Of the farmers who were aware of them, 55 percent approved and 33 percent disapproved. Surprisingly, only half of the professional-managerial workers, who make up a substantial number of the owners, were aware of the ordinances. Of the 50 percent who knew about them, 74 percent approved and 22 percent disapproved.

Clearly, a substantial proportion of owners were either not acquainted with, or had no opinion about, ordinances that rather directly affect their land use options. This indicates that the owners are less than completely involved in the land use policies of local government.

The State of Virginia has passed a real estate classification law which authorizes counties to give preferential property tax treatment to land in agriculture and selected open space uses.<sup>23</sup> Owners were queried about their awareness of the law. Only one-third of residents and one-fourth of nonresidents were aware of it (app., table 7). As in the case of the zoning ordinances, the farmers seemed best informed. As landowners, farmers probably have more to gain under the Virginia preferential tax treatment and, therefore, they are more likely to have obtained information.

It is interesting to note, however, that a lower proportion of farmer owners (just slightly over half) favor a

preferential tax treatment than any other occupation group. Perhaps this is because they feel the rollback feature of the law jeopardizes possible capital gains. Similarly, the proportion of residents favoring the law was lower than the proportion of nonresidents favoring it.

Public measures such as zoning and preferential taxation which are intended to influence land use are most effective when they are widely understood and supported by landowners. The direct regulatory force of such public laws is only a part—perhaps a less important part—of their effectiveness. Land use laws also provide a guide for individual decision. Most land use decisions are individual decisions. The combined effect of these decisions will determine the future of the county. Therefore, if the community does have a plan or objective concerning land use, it is important that it be widely known and approved.

Because nonresidents are also nonvoters, they do not have much representation in county government. The county offices, boards, and commissions that affect taxation, planning, and regulation of land use are elected from and by residents. Nonresident owners will affect land use, not through county government but through individual decisions. If a share of the county's land held by nonresidents continues to increase, some mechanism may be needed to integrate land use decisions of nonresident owners with those of the resident owners.

### Land Policy Choices

If the land market of Rappahannock County continues to transfer small holdings to nonresidents and retirees at relatively high prices, agriculture will not be able to compete for land because income from agriculture cannot support high land prices. As farms are broken up, the small units will lose their viability for economic farm units. But the owners, particularly nonresidents, want farming to continue in the county because of its desirable qualities for a country lifestyle.

The holding of 5 to 50 acres is too small to farm; yet a rather lavish amount of land is needed to support large lots for vacation or second homes. Such farmettes or ranchettes may be the greatest threat to agriculture. A 250-acre farm can be removed from production by parceling it into ten 25-acre lots. Only a few lots may be sold before another farm is divided into small lots. The result is that the acreage in farmland is reduced while the scenic qualities of the land deteriorate.

As the trend toward higher prices and subdivision continues, landowners may want to take concerted action to preserve agriculture and the character of their county that they prefer. They may choose a modified free market system, or they may choose other strategies, such as taxation of transfers, a comprehensive land use plan, stringent zoning restrictions, and other efforts to attract new purchasers into villages and other more intensive use units. Another possibility for an area such as Rappahannock, which would maintain agriculture while

<sup>23</sup> Virginia Code § 58-769.4-6 as amended by Chpt. 209 in 1973. Because Rappahannock had not adopted a preferential tax treatment under the law, the tax questions were hypothetical. The question on approval of preferential tax treatment of agricultural land, unlike the question on zoning, did not require that the owner be aware of the law.





## Ownership Survey Procedures

Of the 4,756 parcels of land in Rappahannock County, 469 were selected for the survey. How were they selected? Why were parcels sampled rather than owners?

Briefly, the why and how of a survey design is economy. Every effort is made to obtain the required information of the best quality possible at the least possible cost. That is why a sample rather than a complete census is taken. A complete census (if accurately done) is a perfect description of the subject under study but a carefully chosen sample can give very reliable estimates, and a statistically designed sample will indicate just what the chance of error is. How useful would the greater precision of a full count be? The answer depends on how the estimates are used, not strictly on the statistical features of the survey.

Why was a sample size of 469 selected? From other surveys we know that not everyone replies to questionnaires—an allowance is made for no response. Thus, a larger number of questionnaires are sent out than are expected to be returned. In the Rappahannock study, 266 usable questionnaires were returned, yielding a response rate of 57 percent. For voluntary surveys of this type, this response rate is considered good.

Do the respondents differ from nonrespondents? Comparisons were made to see if there was a bias in the sample because only part of the originally contacted group replied. From the standpoint of size of parcel there appeared to be virtually no response bias. The average size of parcels for all respondents was 36.19 acres, and of all nonrespondents 36.12 acres.

For more detailed information on nonrespondents, a sample of 30 parcels of land for which we received no response was selected and the owners were interviewed in person or by telephone.

Most nonrespondents simply forgot or did not get around to replying. From a group of nonrespondent owners, holding 30 parcels of land, only two refused to give information—the others either had not been contacted (incorrect address, deceased, and other reasons) or had neglected to respond. We could establish no difference between respondents and nonrespondents.

Are 266 usable responses sufficient? The size of the sample needed depends on the variation among members of a population (parcels in this survey), not the proportion a sample is of a population. A 1 percent sample may be larger than necessary or a 10 percent sample may be

too small. The importance of variability can be understood by thinking about the extreme case: if all items in a population were exactly the same, a sample of one could represent all items. If, for example, all parcels were precisely 60 acres in size, then for size characteristic at least, a sample size of only one 60-acre parcel would suffice. But because parcels in Rappahannock County range from a fraction of an acre to over 400 acres, we need some replies from each of the major size categories of size. If we need just a few broad categories of size, a smaller sample is required than for many narrow categories of size.

Are there ways of using information already on hand? Yes, if the information is really factual and not just opinion or judgment. For example, another study provided a list of the size of every parcel of land in Rappahannock County in 1973. For this study, these parcels were arranged in size from smallest to largest and, beginning at a randomly selected starting point, about every 10th parcel was chosen (parcels of equal acreage were arranged alphabetically, by owner). Thus a sampling of all sizes was systematically obtained. The possibility of obtaining parcels of only one or two size categories was eliminated. All size categories were represented by at least some members of the sample.

Why were parcels, rather than people, used as the basis for the sample? First two ownership “populations” were recognized—one of landowners, one of the parcels of land owned. Because parcels and people are linked by ownership each can be expressed in terms of the other. Parcels were chosen for the same reason that sampling was used: economy. The tax parcels recorded in the office of Commissioner of Revenue (assessor) are a convenient way of identifying ownership units within the county. Because Rappahannock County was a pilot study for other similar studies in the United States, the study was also intended to test the feasibility of using the tax parcel as a proxy for ownership. There must be an owner for each tax parcel but there may be more than one tax parcel per owner. Therefore, the number of tax parcels always exceeds the number of persons or organizations who are owners. In designing the survey it was assumed that about 3,200 owners hold the 4,700 tax parcels in the county. On the questionnaire, owners were asked to verify or correct the number of parcels owned in the county as shown on records we had sampled. This number was adjusted for the greater likelihood of selecting owners with large numbers of parcels than those with small numbers of parcels. Replies of

owners with more than one parcel were weighted by a fraction representing the reciprocal of the number of parcels owned. The original estimate of the total number of owners was derived from the weighted questionnaires.

The weighted estimate total was compared to a full count of owner names used for other purposes. Our estimate of the number of owners (3,032) was remarkably close to the actual count (3,198). The average size of holding of the owners in the survey was 60.1 acres. Total acreage, estimated by multiplying average acreage by the estimated number of owners, was 122,000, or about 18,000 acres less than the known non-park area of 139,000 acres. Estimating acreage by multiplying the total sample acres (9,625) by the inverse of the sample ratio ( $4,756 \div 266$ ) gives an overestimate of acreage. Thus, the particular sample used in this study is better

for estimating owners than area.

Most of the data in the text are expressed as percentages. They are intended to give the reader an estimate of proportion, but should not be used as precise measures. If readers want to estimate numbers rather than percentages, the tabular percentages can be multiplied by the overall totals of 3,196 owners, 4,756 parcels, and 139,000 acres.

The ownership survey encompassed most but not all of the land in the county. The most important omission from the standpoint of size was 31,763 acres of land in the Shenandoah National Park. Highways were omitted. Other minor omissions may have occurred because the land was not shown in assessment records. The survey included both taxable and tax-exempt land in villages and developments, as well as open country.

## Supplemental Data

Appendix table 1—Size of holding, by percent of owners and land owned

Size (acres)	Percent of owners			Percent of land		
	Resident	Nonresident	Residence unclassified	Resident	Nonresident	Residence unclassified
Up to 1 . . . . .	42	45	13	54	38	8
1.1-5 . . . . .	48	47	5	43	50	7
5.1-25 . . . . .	46	48	6	47	50	3
25.1-100 . . . . .	38	57	5	44	53	3
100.1-500 . . . . .	37	62	1	43	55	2
500.1 and over . . . . .	98	01	1	67	15	18

Appendix table 2—Landowners' opinions of schools

Owner status	Opinion of schools					Total
	Good	Adequate	Inadequate	No opinion	No response	
<i>Percent</i>						
Have children:						
In Rappahannock . . . . .	26	55	9	10	0	100
Not in Rappahannock . . . . .	16	36	0	36	12	100
Not specified . . . . .	71	0	0	29	0	100
No children . . . . .	42	18	0	33	7	100

Appendix table 3—Land use, by residence of owner

Use	Resident		Nonresident		Residence unclassified	
	Percent of parcels	Percent of acres	Percent of parcels	Percent of acres	Percent of parcels	Percent of acres
Cropland . . . . .	28	14	13	19	7	1
Pasture, grazing, permanent hayland . . . . .	53	49	35	23	14	50
Woodland, timber . . . . .	39	27	50	41	29	30
Brushland, waste . . . . .	25	7	29	14	18	17
Small building site . . . . .	50	3	52	2	59	2
Other . . . . .	1	<sup>1</sup>	3	1	12	1

<sup>1</sup> Less than 0.5 percent.

Appendix table 4—Opinions regarding Rappahannock County as a place to live, by residence of landowners

Event	Better	No change	Worse	No opinion	Total
<i>Percent</i>					
<b>Nonresidents:</b>					
Small subdivision . . . . .	18	30	29	23	100
Large subdivision . . . . .	11	3	61	25	100
Remove restriction on mobile homes . . . . .	7	9	62	22	100
No new subdivision . . . . .	30	21	23	26	100
Small manufacturing plant . . . . .	30	18	27	25	100
Large manufacturing plant . . . . .	13	2	56	29	100
Medical clinic . . . . .	70	7	1	22	100
More orchards . . . . .	40	28	2	30	100
Less farming . . . . .	3	11	58	28	100
Land sales to residents only . . . . .	7	13	55	25	100
Highway 211 (4 lanes) . . . . .	45	15	18	22	100
Highway 522 (4 lanes) . . . . .	33	9	33	25	100
Shopping center . . . . .	44	8	25	23	100
Central water and sewage . . . . .	61	6	9	24	100
<b>Residents:</b>					
Small subdivision . . . . .	29	22	25	24	100
Large subdivision . . . . .	10	5	58	27	100
Remove restriction on mobile homes . . . . .	19	15	45	21	100
No new subdivision . . . . .	29	17	24	30	100
Small manufacturing plant . . . . .	51	11	18	20	100
Large manufacturing plant . . . . .	34	4	36	26	100
Medical clinic . . . . .	73	3	4	20	100
More orchards . . . . .	33	34	8	25	100
Less farming . . . . .	2	11	60	27	100
Land sales to residents only . . . . .	18	10	46	26	100
Highway 211 (4 lanes) . . . . .	64	3	13	20	100
Highway 522 (4 lanes) . . . . .	41	15	21	23	100
Shopping center . . . . .	46	12	21	21	100
Central water and sewage . . . . .	63	4	12	21	100

Appendix table 5—Opinions regarding Rappahannock County as a place to work, by residence of landowners

Event	Better	No change	Worse	No opinion	Total
<i>Percent</i>					
<b>Nonresidents:</b>					
Small subdivision . . . . .	17	34	14	35	100
Large subdivision . . . . .	22	13	30	35	100
Remove restriction on mobile homes . . . . .	8	14	44	34	100
No new subdivision . . . . .	18	23	23	36	100
Small manufacturing plant . . . . .	52	4	13	31	100
Large manufacturing plant . . . . .	35	1	28	36	100
Medical clinic . . . . .	61	4	1	33	100
More orchards . . . . .	37	22	5	36	100
Less farming . . . . .	6	12	47	35	100
Land sales to residents only . . . . .	5	11	50	34	100
Highway 211 (4 lanes) . . . . .	51	12	4	33	100
Highway 522 ( 4 lanes) . . . . .	39	13	11	36	100
Shopping center . . . . .	45	10	14	31	100
Central water and sewage . . . . .	54	9	5	32	100
<b>Residents:</b>					
Small subdivision . . . . .	23	28	16	33	100
Large subdivision . . . . .	19	12	34	35	100
Remove restriction on mobile homes . . . . .	12	25	25	38	100
No new subdivision . . . . .	18	26	19	37	100
Small manufacturing plant . . . . .	55	6	10	29	100
Large manufacturing plant . . . . .	43	6	19	32	100
Medical clinic . . . . .	59	10	3	28	100
More orchards . . . . .	32	28	6	34	100
Less farming . . . . .	2	16	48	34	100
Land sales to residents only . . . . .	12	16	38	34	100
Highway 211 . . . . .	50	12	10	28	100
Highway 522 . . . . .	38	20	12	30	100
Shopping center . . . . .	41	14	16	29	100
Central water and sewage . . . . .	48	13	9	30	100

Appendix table 6—Awareness and opinion of zoning ordinances, by residence and occupation of landowners

Owner	Not aware	Approve	Disapprove	No opinion	Total
<i>Percent</i>					
Residence:					
Resident .....	39	30	35	6	100
Nonresident .....	64	26	9	1	100
Occupation:					
Farmer .....	12	48	29	11	100
Farmworker .....	50	0	50	0	100
Professional, technical, and managerial .....	50	37	11	2	100
Clerical, sales .....	35	26	29	10	100
Craftsman, operative, worker .....	69	8	17	6	100
Other, employed .....	63	12	25	0	100
Retired .....	57	23	16	4	100
Unemployed .....	56	22	22	0	100

Appendix Table 7—Awareness and approval of Virginia preferential tax law for agriculture, by residence and occupation of landowner

Owner	Awareness of law			Approval of law		
	Aware	Not aware	No response	Approve	Disapprove	No response
<i>Percent</i>						
Residence:						
Resident .....	32	50	18	78	15	7
Nonresident .....	25	66	9	83	12	5
Occupation:						
Farmer .....	67	12	21	55	32	13
Professional, technical, and managerial .....	38	60	2	81	11	8
Clerical, sales .....	28	46	26	100	0	0
Craftsman, operative, worker .....	18	69	13	71	29	0
Other, employed .....	12	88	0	0	100	0
Retired .....	18	70	12	100	0	0
Unemployed .....	11	67	22	100	0	0

U.S. DEPARTMENT OF AGRICULTURE  
ECONOMIC RESEARCH SERVICE  
**LANDOWNERSHIP SURVEY IN  
RAPPAHANNOCK COUNTY, VIRGINIA**

OMB No. 40-574014

Approval Expires 7/31/74

CHECK IF YOU WISH TO GET THE REPORT

☐

**PART I. THE TRACT OR PARCEL**

**For ERS  
Use**

- 1.1 According to public records as of  
Jan 1, 1974, you owned whole or  
part interest in

THIS TRACT OF LAND

(If acreage is not shown please  
write in)

(C1)

(1)

(2-6)

(7-8)

**PLEASE REPORT THE FOLLOWING FACTS ONLY ABOUT THE TRACT ABOVE**

- 1.2 How many acres of the tract would you describe in whole acres, as:

Cropland	_____ acres	none <input type="checkbox"/> - 0	(9-12)
Pasture, grazing, permanent hayland	_____ acres	none <input type="checkbox"/> - 0	(13-16)
Woodland, timber	_____ acres	none <input type="checkbox"/> - 0	(17-20)
Brushland, waste	_____ acres	none <input type="checkbox"/> - 0	(21-24)
Small building site (in use as, or intended for farmstead, cottage area, commercial or industrial site, town site, etc. of less than 10 acres)	_____ acres (to nearest 1/10)	none <input type="checkbox"/> - 0	(25-26)
Other (explain) _____	_____ acres	none <input type="checkbox"/> - 0	(27-30)
Total (same as 1.1)	_____ acres		(31-34)

- 1.3 Are there buildings on the tract of land? Yes ☐ - 1 No ☐ - 2

If YES check types of buildings:

Dwelling: (a house, cottage, cabin, or mobile home)	<input type="checkbox"/> - 1	(36)
Is the dwelling		
Occupied full time	<input type="checkbox"/> - 2	
Occupied part time	<input type="checkbox"/> - 3	
Suitable, but not occupied	<input type="checkbox"/> - 4	
Not suitable for occupancy	<input type="checkbox"/> - 5	
Barns, stables, other farm buildings	<input type="checkbox"/> - 1	(37)
Commercial, industrial	<input type="checkbox"/> - 1	(38)
Other buildings (include government, community, church) (explain) _____	<input type="checkbox"/> - 1	(39)

- 1.4 In what year did you acquire the tract? \_\_\_\_\_ Year (40-41)

- 1.5 How did you acquire the tract? (check one or more) (42)

Purchase	<input type="checkbox"/> - 1/5
Inheritance	<input type="checkbox"/> - 2/6
Gift	<input type="checkbox"/> - 3/7
Other (explain) _____	<input type="checkbox"/> - 4

**1.6 Reason (or reasons) for acquiring:****For ERS  
Use**

If more than one reason write "1" for the most important, "2" for second in importance and "3" for third in importance.\*

**Investment**

for personal operation such as farm, timber or commercial enterprise

☐ - 1

for rental income

☐ - 2

for future sale

☐ - 3**Residence**

primary

☐ - 4

second (or vacation) home

☐ - 5**Other esthetic or personal reasons**

open country recreation

☐ - 6

protection of other land

☐ - 7

to keep in the family

☐ - 8**Other reasons**

(explain) ☐ - 9

\*If you inherited or were given the tract, check the box showing the reason for keeping the tract.

**1.7 Have you made changes in the use of all or part of the tract since you acquired it?**Yes ☐ - 1 No ☐ - 2 (46)

If YES check a box for each type of change made:

		Buildings	Cropland	Pasture Grass Hayland	Woodland	Brush Waste
From Cropland	to	<input type="checkbox"/>	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From Pasture, Grass or Hayland	to	<input type="checkbox"/>	<input type="checkbox"/>	---	<input type="checkbox"/>	<input type="checkbox"/>
From Woodland	to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---	<input type="checkbox"/>
From Brush or Waste	to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---

Other changes (explain) \_\_\_\_\_

**1.8 Within the past 2 years have you used any conservation practices on the tract of land?**Yes ☐ - 1 No ☐ - 2 (48)

If YES which practices;

Planted trees

☐ - 1

Built pond

☐ - 1

Fertilized or limed pasture

☐ - 1

Seeded pasture

☐ - 1

Planted wildlife cover

☐ - 1

Seeded or stabilized road or stream banks

☐ - 1

Bushhogged or controlled brush

☐ - 1

Other conservation practice (explain)

☐ - 1



For ERS  
USE

1.9 In the past year did you receive any income from the tract?

Yes ☐ - 1No ☐ - 2

(57)

If YES from:

Agriculture, self operated

☐ - 1

(58)

Agriculture, renting out

☐ - 1

(59)

Timber sales

☐ - 1

(60)

Hunting, fishing or other recreation

☐ - 1

(61)

Building rental

☐ - 1

(62)

Other (explain) \_\_\_\_\_

☐ - 1

(63)

1.10 What would you estimate to be the current per acre market price of this tract, including buildings?

\$ \_\_\_\_\_ per acre

(64-68)

What would you estimate to be the current per acre market price  
of this tract without buildings (same if no buildings)

\$ \_\_\_\_\_ per acre

(69-73)

Prices of land in Rappahannock have increased in recent years. Do you think this tract has increased  
more, less, or about the same as the market generally?More ☐ - 1

(74)

About the same ☐ - 2Less ☐ - 3

## PART II. OTHER LAND

2.1 Do you own tracts of land in Rappahannock County other than the one  
in question 1.1?Yes ☐No ☐

If YES on the address label to the right of your name is a number.

Is this the number of tracts in Rappahannock county you owned as  
of January 1, 1974?Yes ☐No ☐If the number is not correct, please write in the correct number and  
total acres of land you owned in Rappahannock County.

(number)

(acres)

2.2 Do you own land in:

a. Other Virginia counties or cities?

Yes ☐ - 1No ☐ - 2

(75)

b. Other States or countries?

Yes ☐ - 1No ☐ - 2

(76)

2.3 Do you rent some or all of your land and buildings in Rappahannock  
County to others?Yes ☐ - 1No ☐ - 2

(77)

If you are not renting to others, would you like to rent out if renters  
were available?Yes ☐ - 1No ☐ - 2

(78)

If you are renting to others would you like to rent out additional land  
or buildings?Yes ☐ - 1No ☐ - 2

(79)

## PART III. THE OWNER

3.1 Is the owner of the land specified in Part I question 1.1:

A single individual

☐ - 1

Husband-wife

☐ - 2

A partnership (other than husband-wife)

☐ - 3

An estate (not settled)

☐ - 4

A corporation or company

☐ - 5

Government and institutions

☐ - 6

Other (explain) \_\_\_\_\_

☐ - 7

(C2)

(19)

For ERS  
Use

**NOTE:** Partnerships respond to Part III and IV in terms of the partner receiving the questionnaire.

Corporations do not respond to remainder of Part III. Corporations respond to Part IV to the extent the opinions reflect the corporation or management view.

Estates do not respond to remainder of questionnaire.

Government and Institutions (churchs, colleges, etc.) do not respond to the remainder of the questionnaire.

Other types of owners respond to III and IV if questions are applicable.

**3.2 What is your occupation? (Main source or income, principal activity) (check one)**

(20)

- Farmer (self employed) ☐ - 1
- Farm worker (employed by others) ☐ - 2
- Professional, Technical or Managerial (physician, lawyer, engineer, business, etc.) ☐ - 3
- Clerical, sales ☐ - 4
- Craftsman, operative, worker ☐ - 5
- Other employed (specify) \_\_\_\_\_ ☐ - 6
- Not employed, Retired ☐ - 7
- Not employed, Other ☐ - 8

**3.3 Where is your place of main employment?**

(21)

- In Rappahannock County ☐ - 1
- Outside Rappahannock County ☐ - 2
- Not employed ☐ - 3

**3.4 Please check your economic group:  
(gross average annual income from all sources)**

(22)

- Less than \$3,000 ☐ - 1
- \$3,000 to \$4,999 ☐ - 2
- \$5,000 to \$9,999 ☐ - 3
- \$10,000 to \$19,999 ☐ - 4
- \$20,000 to \$49,999 ☐ - 5
- \$50,000 or more ☐ - 6

**3.5 Please check your age group:**

(23)

- Less than 25 ☐ - 1
- 25 to 34 ☐ - 2
- 35 to 44 ☐ - 3
- 45 to 54 ☐ - 4
- 55 to 64 ☐ - 5
- 65 and over ☐ - 6

**3.6 Please circle number of years of formal schooling:**

7 or less, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 or more

(24-25)

**3.7 Is your permanent or official residence in Rappahannock County? Yes ☐ - 1 No ☐ - 2**

(26)

If no please give county and state \_\_\_\_\_

**PART IV. YOUR OPINION ABOUT RAPPAHANNOCK COUNTY: ITS PUBLIC SERVICES, ITS QUALITIES, ITS PROBLEMS**
**For ERS  
USE**
**4.1 How would you rank the quality of the following public services in Rappahannock?**

	GOOD needs little or no improvement	ADEQUATE sufficient but could use substantial improvement	INADEQUATE non-existent or totally lacking in quality	NO opinion	
Schools	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(29)
Police protection	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(30)
Fire protection	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(31)
Road maintenance	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(32)
Parks and recreation	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(33)
Trash disposal	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(34)
Dog and wild animal control	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(35)
Building inspection and control	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(36)
Sewer and septic inspection and control	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(37)
Administration of zoning, Subdivision control	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(38)
Tax assessment	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(39)
County Extension Programs	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(40)
Other _____	<input type="checkbox"/> - 1	<input type="checkbox"/> - 2	<input type="checkbox"/> - 3	<input type="checkbox"/> - 4	(41)
Do you have children?	Yes <input type="checkbox"/> - 1		No <input type="checkbox"/> - 2		(42)
If yes, are they eligible to attend, or do they attend, Rappahannock public schools?	Yes <input type="checkbox"/> - 1		No <input type="checkbox"/> - 2		(43)

**4.2 If you could specify how \$100 of your County taxes were to be spent among the 3 most important public service needs, how would you distribute the \$100 among them:**

County service <i>(write in service listed in 4.1 above)</i>	Funds Distribution <i>(write whole dollars)</i>	
1st) _____	\$ _____	(44-47)
2nd) _____	\$ _____	(48-51)
3rd) _____	\$ _____	(52-55)
<b>Total \$ 100.</b>		

**4.3 Are you acquainted with Rappahannock County's new zoning and subdivision ordinances?**

	Yes <input type="checkbox"/> - 1	No <input type="checkbox"/> - 2	(56)
If yes, do you approve of them?	Approve <input type="checkbox"/> - 1		(57)
	Disapprove <input type="checkbox"/> - 2		
	No opinion <input type="checkbox"/> - 3		
If you disapprove, how should they be changed? _____			
_____			
_____			

4.4 Are you acquainted with Virginia's real estate classification and tax law (Va. 58-769.4-.16 as amended by Chpt. 209 in 1973) that permits counties to give preferential tax treatment to land which remains in agriculture and other open space uses?

Yes ☐ - 1 No ☐ - 2

For ERS  
Use

(58)

Would you favor Rappahannock County adopting a tax assessment procedure that would assess agricultural land on the basis of its use in agriculture rather than market value?

Yes ☐ - 1 No ☐ - 2

(59)

4.5 What effect do you think the following events would have on Rappahannock County?

(For each situation, check once under (1) place to live, and once under (2) place to work.)

Effect on Rappahannock as a:

(1) Place to Live (2) Place to Work

(C3)

Better No change Worse Better No change Worse

- |   |                              |                              |                              |                              |                              |                              |         |
|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---------|
| 1. A small recreational subdivision (ten or less units) is built  | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (19-20) |
| 2. A large recreational subdivision (say 1,000 units) is built  | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (21-22) |
| 3. The land use restrictions on mobile homes are removed  | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (23-24) |
| 4. No new subdivisions are approved   | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (25-26) |
| 5. A new small manufacturing plant is started   | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (27-28) |
| 6. A large manufacturing plant is started   | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (29-30) |
| 7. A medical clinic is built  | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (31-32) |
| 8. The acreage in orchards is increased 50 percent  | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (33-34) |
| 9. The acreage in all types of farming is decreased 50 percent  | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (35-36) |
| 10. All new sales of land are only to residents of the County   | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (37-38) |
| 11. Highway 211 is completed to 4 lane throughout the County and connected 4 lane, to U.S. 81             | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (39-40) |
| 12. Highway 522 is expanded to 4 lane throughout the County   | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (41)    |
| 13. A new shopping center is built on one of the major roads, away from existing towns                    | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (42-43) |
| 14. Central water and sewerage treatment facilities are installed in all towns and villages of the county | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | <input type="checkbox"/> - 1 | <input type="checkbox"/> - 2 | <input type="checkbox"/> - 3 | (44-45) |